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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,166	09/25/2003	Rodney I. Frost	SP03-126	7017
22928	7590	02/23/2005	EXAMINER	
CORNING INCORPORATED			GREENE, JASON M	
SP-TI-3-1			ART UNIT	PAPER NUMBER
CORNING, NY 14831			1724	

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/671,166

Applicant(s)

FROST, RODNEY I.

Examiner

Jason M. Greene

Art Unit

1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 16-20 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-15 is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 4-8 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/25/03; 12/23/03</u> | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of Group I, claims 1-15 in the reply filed on 13 January 2005 is acknowledged.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 1, 2, and 4-7 are rejected under 35 U.S.C. 102(a) as being anticipated by Japanese Design Registration No. D1172155.

With regard to claims 1, 2, 4 and 5, Japanese Design Registration No. D1172155 (hereafter D1172155) discloses a honeycomb filter comprising an array of interconnecting porous walls which define an array of first channels (the larger channels) and second channels (the smaller channels), the first channels being bordered on their sides by the second channels and having a larger hydraulic diameter

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than the second channels, the first channels having a square cross-section, with corners of the first channels having a filleted shape such that the thickness of the porous walls adjoining corners of the first channels is comparable to the thickness of the porous walls adjoining edges of the first and second channels, wherein edges of diagonally-adjacent first channels are substantially aligned, and wherein the second channels have a square cross-section in the Figure at the bottom of page 1. The Examiner notes that the term "comparable" has been interpreted to mean that the thickness of the porous walls adjoining corners of the first channels is approximately equal to the thickness of the porous walls adjoining edges of the first and second channels. While the Figure at the bottom of page 1 is obviously not drawn to scale, the thickness of the porous walls adjoining corners of the first channels is approximately equal to the thickness of the porous walls adjoining edges of the first and second channels since both sets of walls are shown as having the same thickness (1/16 of an inch).

With regard to claims 6 and 7, D1172155 depicts the first channels having a width of approximately  $\frac{3}{8}$  of an inch and the second channels having a width of approximately  $\frac{7}{32}$  of an inch. Since the channels are roughly square in shape, the hydraulic diameter of each channel is approximately equal to the channel width. Again, while the drawing is obviously not to scale, the ratio of hydraulic diameters can still be estimated from the depicted channel width. Therefore, the ratio of hydraulic diameters is  $\frac{3}{8} \text{ inch} / \frac{7}{32} \text{ inch} = 1.71$ . Furthermore, even though the first channels are not

completely square in shape due to the filleted corners, the filleted corners will cause the first channels to have a slightly larger hydraulic diameter than if the cells were completely square in shape (see paragraph 0024 of the instant specification).

Therefore, D1172155 teaches the ratio of the hydraulic diameter of the first channels to the hydraulic diameter of the second channels being in a range from 1.7 to 2.0.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Design Registration No. D1172155 in view of Montierth.

D1172155 discloses the first channels being end plugged at a first end of the honeycomb filter and the second channels being end-plugged at a second end of the honeycomb filter in the Figures at the bottom of pages 3 and 4.

D1172155 does not disclose the direction of exhaust flow through the honeycomb filter and therefore does not explicitly teach that flow into the first channels passes through the porous walls and then out of the honeycomb filter through the second channels.

Montierth discloses a similar honeycomb filter (10) having an array of first channels (13) and an array of second channels (14), wherein the first channels have a larger hydraulic diameter than the second channels, and wherein flow passes the first channels passes through the porous walls and then out of the honeycomb filter through the second channels in Figs. 1 and 1a and col. 5, line 54 to col. 6, line 11.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the flow into the larger channels and out of the smaller channels of Montierth into the filter of D1172155 to maximize the surface area available for collecting particulates contained in the exhaust stream to improve particulate capacity and operating time, as suggested by Montierth in col. 3, lines 31-46.

***Allowable Subject Matter***

6. Claims 9-15 are allowed.
7. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
8. The following is a statement of reasons for the indication of allowable subject matter:

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With regard to claim 3, the prior art made of record does not teach or fairly suggest the honeycomb filter of claim 1 wherein the corners of the first channels have a beveled shape. Specifically, while D1172155 teaches the corners of the first channels having a filleted shape, the reference and the other prior art made of record does not teach or fairly suggest the corners having a beveled shape.

With regard to claims 9-15, D1172155 teaches a honeycomb filter comprising an array of interconnecting porous walls which define an array of first channels (the larger channels) having a square cross-section and second channels (the smaller channels) having a square cross-section, the first channels being bordered on their edges by the second channels and having a larger hydraulic diameter than the second channels in the Figure at the bottom of page 1.

The prior art made of record does not teach or fairly suggest the honeycomb filter of claim 9 wherein the edges of the first channels are aligned with edges of the bordering second channels.

### ***Conclusion***


9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Beall et al. '822, Beall et al. '132, Hong et al., Komori et al., Brew et al. and Pitcher, Jr. references disclose similar honeycomb filters.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Greene whose telephone number is (571) 272-1157. The examiner can normally be reached on Monday - Friday (9:00 AM to 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jason M. Greene  
Examiner  
Art Unit 1724

  
2/21/05

jmg  
February 21, 2005